VINEBERG (H.N.)

THE SURGICAL TREATMENT

OF

Backward Displacements of the Uterus

WITH SPECIAL REFERENCE TO VAGINAL FIXATION

BY

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BACKWARD DISPLACEMENTS OF THE UTERUS,

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THE treatment of backward displacements of the uterus forms an important feature of the gynecologist's work. Despite the assertions one occasionally hears, and notwithstanding the statements one now and then finds in literature, that uterine displacements frequently give rise to no trouble, I think most observers will agree with the writer that, as a rule, such conditions sooner or later produce symptoms of greater or less severity. Excluding the cases of congenital retroversions, and the cases of retroversion sometimes accompanying lactation and senile atrophy, I have during an extensive dispensary and a moderate private practice of over ten years seen but few cases that did not cause considerable trouble at some time or other. It may be that freedom of symptoms obtained for years until conception took place, resulting in an abortion with all its consequences,[1] or the woman may have gone on for years ignorant of the fact that she had any pelvic lesion until the malposition brought about chronic metritis or involvement of the tubes and ovaries, or until adhesions had formed. Of course, the sequence of events is not always in this order. In a large percentage of cases the opposite obtains; there is metritis, pelvic perimetritis, an exudate, or salpingo-oöphoritis, each of which may bring in its train a malposition of the uterus. When a woman comes to us and says her backache, bearing-down pains, etc., date back for only

[1] Römheld, on analyzing two hundred and thirty-two cases of abortion in Kehrer's clinic in Heidelberg, found fifty-eight per cent to have been due to retrodeviations of the uterus (Inaug. Dissert., Heidelberg, 1895; Ctrlbl. f. Gynäk., 1895, No. 39).

a few months, and we find a hard, enlarged, and retroflexed uterus, we know that the displacement must have existed for a long time ere it could have produced pathological changes of such an advanced type. I quite agree with Schultze that abnormal mobility must be looked upon as one of the earliest stages of retroversion, and when left to itself will usually result in the severest degree of that condition. It behooves us, then, to attempt to remedy every case of backward displacement, even if it produces no symptom at the time of its discovery. This, to my mind, constitutes true prophylaxis as well as real conservatism, having for its aim the prevention of serious tissue changes which, when once established, offer but indifferent results with any form of treatment.

As my paper deals only with the surgical treatment of the condition in question, I will merely state incidentally that most authors agree upon the advisability of first making a faithful attempt to cure the malposition by mechanical means—*i.e.*, by either tampons, pessaries, or, I may add, pelvic massage. The more recent the trouble the more likely will it be that these means will succeed. Unfortunately, we do not see the cases in the early stages, and this circumstance in part accounts for the discouraging results usually attending non surgical treatment.[1]

Although the number of operative procedures is legion that have been devised for the cure of retroversions and retroflexions, the following alone have stood the test of time and merit our consideration :

1. Shortening of the round ligaments within or without the abdomen.
2. Ventral fixation.
3. Vaginal fixation.

1. *Shortening of the Round Ligaments ; Alexander's Operation.*—This operation has several warm advocates in this country. There are, however, some serious objections to it that cannot be counterbalanced by the problematical advantage, alleged by its advocates, that the uterus is held in position by its natural supports. It certainly has not been proved that the round liga-

[1] Statistics covering a large number of cases give from seven to ten per cent of cures. This percentage is considered very high by most gynecologists. Some give it as their experience that not more than from three to four per cent are permanently cured. By a permanent cure is meant that the uterus will remain in normal position after the removal of the pessary.

ments are the structures that hold the uterus in the normal position. Even granting this to be the case, once they have undergone such change as to destroy their function, they are unfit to perform it in the future. Simply cutting away a portion of them does not render the remaining part healthier and less likely to yield to opposing traction than it originally did.[1] Another contention for the operation is that it fixes the uterus in an ideal position. I have examined a great number of cases in which the operation had been done. In some I found the fundus drawn over to one side or the other; in others again the whole uterus lay immediately behind the symphysis, with the axis of the vaginal portion parallel to that of the outlet of the vagina. But I am not going to split hairs on this point. In a fair proportion of cases the uterus lay in a satisfactory position.

The insurmountable objection to Alexander's operation has been that it afforded no opportunity of ocular inspection and suitable surgical treatment of the adnexa, which are so frequently involved in backward displacements, and of the breaking up of adhesions that exist to a greater or less degree in at least ninety-five per cent of these cases. These contingencies narrowed down the indications of the operation to mobile retrodisplacements uncomplicated by diseased adnexa. And just here came the difficulty: the mobility of the uterus could readily be determined, but the exact condition of the adnexa could not be ascertained without direct ocular inspection and direct palpation.[2] To meet this objection it has recently been proposed to first make a vaginal incision in the posterior fornix through which the adnexa could be directly palpated and the adhesions broken up. Singularly enough, this proposition comes from one of the foremost leaders in the battle that is being waged in favor of the vaginal over the abdominal route for pelvic surgery. One of the strong arguments in favor of the former, justly used by him and others, is that it avoids a weak point in the abdominal wall, with the consequent risks of the development of hernia.

[1] The percentage of cures is variously stated by different operators. Edebohls says a hundred per cent; Clement Cleveland, about seventy-five per cent. Davenport has met with a number of failures in his own cases and in those of other operators (Trans. of the Am. Gynec. Soc., 1894).

[2] Even so careful and able a diagnostician as Edebohls, in a case in which he had to open the abdomen because one of the ligaments tore out at its insertion in the uterus, found an ovarian cyst of the size of a walnut which prior to that had escaped his attention.

The operation of shortening the round ligaments (Alexander's) necessarily produces two such weak points in the abdominal wall. A few years ago, while studying up this point, the writer wrote to two gentlemen with large opportunities of seeing hernias of all descriptions to kindly furnish him with a statement of their experiences in the occurrence of hernia following Alexander's operation. One gentleman replied that in the preceding two years he had seen twelve cases of hernia directly traceable to Alexander's operation. Nine of these women had hernia on one side only, and three on both sides. The other gentleman had seen nine cases of hernia during the same period. The operations had been done by five of the best operators in the city. These facts alone prove that the occurrence of hernia after the operation is not uncommon.

That it should frequently follow the operation is no more than could be expected; firstly, because the tissues have often to be mutilated a great deal before the ligaments can be found; and, secondly, because there are but very few operators who have such control of all the conditions that they can invariably secure primary union. Every one agrees that it not infrequently happens that the ligaments are difficult to find, and that when found they are so brittle as to break readily, or so changed by fatty degeneration as to be unfit for the purpose of mooring the uterus.

To first make an incision into the peritoneum (for the peritoneal cavity must be opened) through the vagina, and draw out the tubes and ovaries through this incision for the purpose of exploration and surgical treatment, if this is necessary—a procedure often beset with no small degree of difficulty—then to do an Alexander's operation, which generally is attended with more or less difficulty and consumes considerable time, seems to the writer, though he has the highest regard for the gentleman making this proposition, rather extensive and severe surgery for the condition under discussion. The one great advantage that Alexander's operation had over ventrofixation was that it did not subject the woman to the risks inherent to opening the peritoneum.[1] The operation done in accordance with the pro-

[1] It must not be assumed that Alexander's operation, pure and simple, has no mortality. In a recent paper by Dr. Johnson, of Boston, read before the New York Obstetrical Society, he stated that he had met with three deaths in two hundred and forty cases, and that he knew of two more deaths that had occurred after the operation in Boston. Other deaths have also been reported.

posed modification effaces that advantage totally and substitutes two weak points in the abdominal parietes for one. Furthermore, the existence of two cicatrices in the abdomen of a woman is not particularly a desirable desideratum. Apart from an æsthetic consideration, a skin cicatrix is not a pleasant possession and frequently gives rise to more or less discomfort to its bearer. These perhaps are minor matters, but they rise in importance if the same end—*i.e.*, a cure of the patient—can be achieved by other methods to which they do not appertain.

2. *Shortening of the Round Ligaments within the Abdomen.*—I have had no experience with this operation. The nicety of adjustment necessary to draw the ligatures applied to the loops of the cord just tight enough to hold, but not so tight as to produce constriction, is so great that the method has never become popular.[1]

A further objection that will occur to many is the necessity of leaving four non-absorbable sutures within the abdomen. The pranks which sutures of non-absorbable material are prone to play within the abdomen are peculiar and uncertain. The abdomen being opened, most operators would, I think, prefer to do a ventral fixation, which has generally given pretty good satisfaction, and which has stood the test of time fairly well.

3. *Ventrofixation.*—This operation has been modified in various ways. That so many modifications have been attempted probably furnishes strong evidence that the method is not without its drawbacks. For the past three years I have resorted to ventrofixation several times. I have, with but few exceptions, followed the method known as Leopold's—*i.e.*, that of stitching the anterior aspect of the body and fundus to the abdominal wall. In one case known to me pregnancy occurred. The woman went to full term, though she was threatened with a miscarriage at the fourth month. I found the uterus in the forward position when I examined the woman three weeks after labor. The objections inherent to the operation are those attending the opening of the peritoneal cavity through the abdominal wall. As the *pros* and *cons* of the abdominal route have recently been fully discussed, it will not be the purpose of the writer to enter into them, save as he may find it necessary

[1] Dr. P. F. Mundé has reported a case in which the sutures were drawn too taut, and as a consequence an abscess resulted which fortunately discharged through the abdomen (Amer. Jour. of Obstet. May, 1895, pp. 73–77).

in the consideration of the next method, which he has had the honor of introducing into this country.

4. *Vaginofixation.*—It was early in the autumn of 1893 that I performed the first operation, following pretty closely the descriptions of Mackenrodt and Winter. I presented a short paper on the operation to the New York Obstetrical Society on November 21st, 1893, and reported four cases.[1]

At a very early stage of my work I modified the steps of the operation so that the body and fundus were brought well out into the incision, and the fixation sutures passed with the aid of sight. It is interesting to note that the operation has undergone several similar modifications in the hands of different operators, all independent of one another. As the writer has given a full description of the technique of the operation in his article published in the *New York Medical Journal* for October 27th, 1894, it will be unnecessary for him to describe it here. Since then, however, he has made some very important modifications. In the first place he has entirely discarded the use of the sound to antevert the uterus. This he now accomplishes in the following manner: After the peritoneal fold has either been torn through with the finger or cut with the scissors, the volsellæ applied to the cervix to draw it to the vulva are now made to push it backward into the posterior fornix of the vagina. This step at once throws the body somewhat forward. Then either with successive volsellæ or traction sutures (preferably the latter, as they are not so likely to tear out) he proceeds up the anterior surface of the uterus until the fundus is reached and it is brought entirely through the vaginal incision. The whole uterus now presents at the vulval opening. Its anterior and posterior surfaces are rapidly scanned for any pathological growths. Then with two fingers the adnexa of one side are brought out through the incision. The ease or difficulty attending this procedure depends upon the extent and firmness of the adhesions existing between the adnexa and the pelvic wall and floor. After they are drawn out they can be treated on conservative surgical principles with the same facility as by the abdominal route. To any one who has not seen or done the operation this statement may seem incredible. But it is a fact, nevertheless, that I have often resected the diseased portion of an ovary, whipping over the healthy remaining portion with a continuous catgut suture, and

[1] N. Y. Jour. of Gyn. and Obstet., January, 1894.

have removed a portion of a diseased tube with the same ease as I have done similar things through an abdominal incision When the tube and ovary are hopelessly diseased they are tied, as in the abdominal method, and ablated.

The tube and ovary of the other side are then drawn out and treated in the same manner. Two or three silk sutures are now carried across the anterior surface of the uterus about a centimetre apart, the superior one being passed about a centimetre below the level of the insertion of the tubes. The next step consists in returning the uterus (the adnexa having been returned before) into the pelvic cavity. This may sometimes be accompanied by considerable difficulty, but I have always been able to surmount it by catching the cervix with a volsella and drawing it forcibly into the position in which it was held at the beginning of the operation, and by pressing the fundus with the fingers backward and downward. The fixation sutures are next carried through the vaginal flaps by means of a carrying suture. Before this, however, the anterior surface of the uterus between the sutures has been scarified,[1] as in ventrofixation.

It goes without saying that in the event of a laceration of the cervix or perineum, or both, it is attended to at the same sitting. I have had occasion several times to perform the following series of operations at one sitting: (1) curettage, (2) exploration and surgical treatment of the adnexa, (3) vaginal fixation, (4) amputation of the cervix, (5) perineorrhaphy, (6) operation for hemorrhoids, either by clamp and cautery or by ligature. It has not been my experience thus far to witness any shock or any other ill effects from following this course. The ability to do this expeditiously and with immunity forms, to my mind, an important advantage of this method. Of course, I am aware that the same thing may and has been done with Alexander's operation and with ventrofixation. But if it should take an hour or longer to find the round ligaments, as it often does, the patient would need to be kept under the anesthetic for an exceedingly long time.

I have performed the operation of vaginal fixation forty-eight times in all. The cases require to be divided into the following series:

[1] In order *not* to obtain too firm adhesion of the uterus to the vaginal wall, the scarification had better be avoided.

First Series.—Simple vaginal fixation without intentionally opening the peritoneum.

Group a.—Mobile retroflexions and versions without recognizable disease of the adnexa in five cases. Results: Four cures, and one relapse after four months following an induced abortion. Duration of observation from seven to thirty months.

Group b.—Retroflexio-versions with adhesions and moderate disease of the adnexa. Fifteen cases. Results: Eight cures; seven relapses occurring in from four weeks to four months. Of the seven failures four were in cases of congenital retroversion. Duration of observation from fifteen to thirty months.

Second Series.—Vaginal fixation combined with vaginal celiotomy.

Group a.—Mobile retroflexio-versions with slight disease of the adnexa. Nine cases. Results: Nine cures. Duration of observation from three to fourteen months.

Group b.—Retroflexio versions with adhesions and considerable disease of one or another of the adnexa, requiring ablation or plastic surgery. Twenty cases. Results: Nineteen cures; one partial relapse. Duration of observation from one to fourteen months.

The case of partial failure in group *b* of the second series occurred in a very delicate, elderly spinster, who for over six years had been treated off and on with pessaries and tampons without any success. The uterus was in complete retroflexion, with the flexion very rigid and the fundus moderately adherent posteriorly. There was a small subserous fibroid attached to the anterior aspect of the fundus, which was removed at the time of operation. Owing to extensive adhesions and the poor general condition of the patient, I did not, as in the other cases of this series, draw out the uterus entirely, nor were the adnexa brought out for inspection through the incision. The case, therefore, does not truly belong to this series. Of course, some of the cases have not as yet been under observation for a sufficient length of time to justify a positive opinion as to permanent results. With the exception of two or three cases, however, more than four months have elapsed since the operation, and it has been my experience that when a relapse does occur it takes place within the first four months. The statement may therefore be made that in the second series of twenty-eight cases the percentage of cures (at least the anatomical) was a hundred.

The cases included in the first series go to show that in mobile retroflexions uncomplicated by appreciable disease of the adnexa the results are good even without opening the peritoneal cavity. When adhesions exist the results are uncertain, as one might expect. In group *b* of this series there were four cases of congenital retroversion. In one of them I did subsequently a ventrofixation and removed a diseased tube and ovary. Six months later the uterus had again fallen into retroflexion. This case, as well as others of the same nature, emphasizes the inutility of attempting to remedy bad cases of congenital retroversion, attended with symptoms, by any of the operative procedures in vogue. The failures are due to the anatomical condition that obtains, which consists in a shortening of all the uterine ligaments and pelvic supports. It was with the greatest difficulty in the foregoing case that I could bring the fundus up to the abdominal parietes. Dr. Edebohls has reported a similar case in which he could not bring the fundus any farther up than within two inches of the walls of the abdomen. He then did Alexander's operation, but the displacement quickly returned. Finally he performed vaginal fixation, and again after a few months the uterus was found in retroversion.

Four of my patients, to my knowledge, subsequently became pregnant. One brought on an abortion, as already stated. Two others went to full term. The gestation in these two cases was remarkably free from any disturbances; there were no bladder symptoms, nor at any time did symptoms threatening a miscarriage become manifest. During the same period I had under observation a case of pregnancy in a woman on whom I had done ventrofixation. The patient was threatened with a miscarriage at the fourth month and had considerable pain and bladder disturbances during the greater period of her gestation.

I delivered one of the vaginal-fixation patients myself. The labor was easy and normal in every respect. The woman was exceedingly anemic, though she lost but a small quantity of blood at the termination of the labor. As a consequence of the anemia and inability to perform the function of lactation satisfactorily there was tardy involution, with a tendency for the heavy uterus to fall into retroversion. The wearing of a pessary for a few weeks overcame this tendency. This was one of my early cases.

The other pregnant woman I had under observation until her

eighth month, when I lost sight of her, owing to her removal. Up to this time she had been remarkably free from any disturbances. After a persevering search I succeeded in finding her whereabouts on January 19th of this year. I called at the house and learned the following: She had been very well until the day of her labor, June 24th, 1895. While she was on the street the day before the waters broke without any pain. On the above stated day, at 2:30 P.M., slight labor pains set in, and ninety minutes later the child, a boy, was born. The doctor (Dr. M. Block) just reached the house in time for the delivery. She had a good puerperium, getting up on the tenth day. She has been very well since, and nurses her baby. She has never felt better in her life, and is doing all her household work alone. Menstruation has not reappeared. On examination I found a small, perfectly involuted uterus lying in an ideal forward position. It may be of interest to give the following abstract of her history prior to the operation:

Aged 30 years; married seven years; last child three years ago; one miscarriage at two months, eighteen months ago; second labor was instrumental and was followed by some fever for a few days; never quite well since. Following the miscarriage she had chills and fever for forty-eight hours. Ever since then she had been ailing all the time with severe backache, pain across the lower part of the abdomen, profuse leucorrhea, and frequent micturition, having to get up several times during the night to void urine. On examination the uterus was found retroverted to the third degree and moderately adherent posteriorly. The posterior lip of the cervix was torn in the median line to the vaginal attachment, and was eroded. There was considerable thick, tenacious discharge hanging from the os.

She had been treated for several months with tampons and with a pessary without any benefit.

On November 6th, 1893, at St. Elizabeth Hospital, curettage, trachelorrhaphy, and vaginal fixation were done. The patient left the hospital on November 27th. She was presented at the New York Obstetrical Society on April 17th, 1894. Dr. E. H. Grandin (appointed by the chair to examine the patient) reported that he found her uterus in a good position in the pelvis, fixed anteriorly to the cicatrix in the anterior fornix. The woman had told him that she had had no pain, although previously she had had some symptoms referable to the uterus,

such as backache and dragging pain ; in other words, the operation seemed to have a field of utility, contrary to his previously formed opinion. He would like to see the patient after a longer period had elapsed, because he thought it very problematical that the operation would give permanent results (Transactions of the New York Obstetrical Society, *New York Journal of Gynecology and Obstetrics*, June, 1894).[1]

The third case of pregnancy I saw on January 22d of this year. The woman had been operated on in a tenement house on June 30th, 1895, in the presence of Dr. S. Rapp and Dr. A. F. Brugman in addition to my usual assistants. There had been retroflexion of the third degree and prolapsus of the first degree. There were some thickening and sensitiveness on pressure of the right tube. I curetted the uterus, then performed vaginal celiotomy, and drew out the uterus and adnexa through the incision. Two cysts in the right ovary were punctured. Two cysts, each of the size of a cherry, were attached to the distal end of the right tube. These were ligated and cut away. A narrow strip was excised from each vaginal flap. The uterus was fixed by three silk sutures, and the vaginal flaps were brought together by continuous catgut sutures. The uterus was in a good forward position and well up in the pelvis after the operation. The patient made an uneventful recovery. This patient, six weeks after the operation, was also lost sight of, owing to removal, until the above-mentioned date. She was then over five months and a half pregnant, and had no trouble whatsoever. On examination the cervix was found in a good position in the upper vaginal tract. The uterus lay high in the abdomen in normal position, and, had it not been for the cicatrix felt in the anterior fornix, one would not have been able to tell that the uterus had been vaginofixated.

Now, about the criticisms of the operation that have appeared in this country. Though in one instance coming from high quarters, they have been based entirely on theoretical considerations. It has been said that the operation was illogical; that it disturbed the bladder, etc. As a matter of fact and observation, however, bladder symptoms do not follow the operation. As a rule some functional disturbances, such as frequent micturition and tenesmus, accompany displacements of the uterus.

[1] New York Medical Journal, October 27th, 1894.

It has been my experience that these disturbances either totally disappear or become decidedly less after the operation.

Another criticism brought forward is that it fixes the uterus in a pathological anteflexion. This point has already been touched upon and will be further discussed later. The criticisms that have recently appeared in Germany are of a much more serious nature. In two or three cases of pregnancy following the operation severe surgical interference has been necessary to deliver the woman. In one case Cesarean section had to be done, and the patient died. But these difficulties occurred in patients operated upon by Dührssen's method, in which the technique is decidedly faulty, and I am pleased to state that I have never followed it. Dührssen's method, as you know, consists in making a transverse incision in the anterior fornix of the vagina, at the vaginal junction of the cervix, in order to avoid injuring the bladder. The bladder is pushed up and the fundus is stitched to the flaps of the incision. The fundus is thus fixed to the vaginal vault just a little anterior to its central point. Taking from two and a half to three inches as the average length of the uterus, it can readily be seen how the fixation of the fundus at that point must throw the cervix far back into the hollow of the sacrum. When it does not do that, it must force the uterus to double up, producing a very acute anteflexion. It was the former condition that gave rise to the difficulty at labor. The cervix pointed backward and upward toward the promontory of the sacrum, so that it could not be reached. Now, in the technique followed by me the fundus of the uterus lies fully from two to three inches farther forward in the pelvic plane than by the Dührssen method. I make a longitudinal incision reaching from near the urethral meatus to the vaginal attachment of the cervix. The first fixation suture is carried through the anterior aspect of the uterus about a centimetre below the insertion of the tubes, and is passed through the vaginal flaps near the urethral opening. The fundus is thus carried well forward and lies in pretty near the same position it occupies in the normal state. The excellent position of the uterus accomplished by the operation is not appreciable to the onlooker unless he makes an examination afterward.

Dr. T. G. Thomas and Dr. H. J. Garrigues, who did me the honor to be present at two of the operations, expressed great satisfaction with the position of the uterus disclosed to them by

bimanual palpation. Owing to an accident in one case, a rare opportunity was afforded me of having an ocular demonstration of the exact position of the uterus. I was doing a vaginal celiotomy for a diseased ovary and a retroversion. Through inadvertence on my part a small gauze sponge slipped off the holder into the peritoneal cavity. After making several ineffectual attempts to reach it with my fingers, I decided it would be wiser to search for it through an abdominal incision. I completed the operation in the usual way and then made a short incision in the abdominal wall near the pubes. As soon as I cut through the peritoneum my fingers almost immediately came into contact with the gauze sponge lying against the posterior aspect of the fundus. I was myself surprised to find the fundus so high up in the pelvis, reaching within an inch of the abdominal parietes. In a recent number of the *Centralblatt für Gynäkologie* I learn that Mackenrodt himself has discarded his former method of vaginal fixation for another, which he terms "vesicofixation." The reasons he assigns for the change of front are that without opening the peritoneal cavity he has been able to obtain only ninety per cent of permanent cures, and that in order to obtain better results he would need to open the peritoneal cavity and bring about direct adhesion between the uterus and the vaginal walls. This adhesion would be so firm, he fears, that in case of pregnancy the same unfortunate results might obtain that occurred in a few of Dührssen's cases.

He had also observed some bladder disturbances in some of his cases. These are to be avoided by stitching the uterus to the peritoneum of the bladder. What ingenuity! What arguments! One scarcely believes that they were offered seriously. Any one who has closely followed the literature on the subject, and especially the polemic and bitter discussion between Dührssen, Winter, and Mackenrodt, may have an inkling of the motives that induced the latter to disinherit the firstborn in favor of his second offspring. The fact is that, although to Mackenrodt belongs the credit of practically carrying out Sänger's suggestion of stitching the uterus to the anterior vaginal wall and of making a longitudinal instead of a transverse incision, his followers have outdistanced him in the improvements of the method. Winter operated exactly in accordance with his description and had numerous relapses. He then modified the technique much in the same manner as the writer

has done, and had invariably good results. A similar experience was gained by Schauta [1] and several other operators.

Mackenrodt laid great stress upon obliterating the vesico-uterine space by catgut sutures. To this step, no doubt, must be attributed the bladder disturbances he has witnessed. I have paid no attention to this point, and my experience of the freedom from bladder symptoms in my patients bears evidence to the wisdom of this course.

The technique I now follow differs in some respects from that followed by all other operators. It differs from that of Mackenrodt as follows: 1. In that the peritoneum is always opened. 2. In that the fundus is drawn out through the incision. 3. In that the adnexa are directly treated as they would be by the abdominal route. 4. In that no attention is paid to the vesico-uterine space. 5. In that the uterus is stitched directly to the vaginal wall.

It differs from that of Dührssen and his followers: 1. In that a longitudinal incision is always made. 2. In that the uterus is sutured at a point a little below the fundus. 3. In that the uterus is sutured to the vaginal wall near the urethral meatus.

The very good results, both anatomically and clinically, I have obtained by my modifications justify me in their continuance and in recommending them to the profession. That the operation is capable of being farther improved cannot be gainsaid. The one serious consideration regarding this method, and all others for fixing the uterus in a forward position, is the behavior of pregnancy and labor should conception take place. In ventrofixation it is not uncommon to have disturbances during gestation and labor, such as pain, abortion, bladder disturbances, and surgical interference.[2] The disturbances from Alexander's operation have probably been less than those from any other method, though some have been recorded from time to time.

In vaginofixation, if certain points are observed in the technique, there ought not to be any disturbances, as shown by my own three cases. Of course, I recognize the limitation of this

[1] E. Wertheim, "Zur Technik der vaginalen Fixation des Uterus."

[2] E. Wertheim (Centrlbl. für Gyn., 1896, No. 2) cites Miländer (Zeitsch. für Geburtsh. und Gynäk., Bd. xxxiii., Heft 3), who investigated fifty-four cases of full-term labor after ventrofixation. In four cases the use of the forceps was necessary; in four, version had to be done; in two, Cesarean section had to be resorted to; and in one extraction (*sic!*) was employed.

experience. But quite a large number of cases have been reported abroad in which there was no trouble during gestation and labor. The literature on the subject, however, came to hand just as I was finishing this paper, and I have not had the time to analyze it thoroughly and incorporate it therein.